The descriptions of the species are, especially in the first volume, by far too long. Short diagnoses would be of much greater assistance to naturalists using the work for the determination of species. It may be said, no doubt, that such diagnoses *are* given in the tabular keys of the species under the head of each genus. This is true to a certain extent; at the same time these keys only refer to *one* point of difference between allied species, and if a student misses the particular key selected by Mr. Sharpe he will find it very difficult to open the lock. If instead of the lengthened description, a short diagnosis were given and remarks on the points of difference between the species in question and its nearest allies were appended, the result would be at least of equal, if not of greater value, to the working ornithologist, and at the same time the work would be materially shortened. Nothing serves so clearly to explain the character of an unknown object as reference to an object well known and a specification of the points of difference. Such particulars, now universally added by naturalists to their characters of species, are rarely to be found in Mr. Sharpe's catalogue.

One other point we will mention—that we trust Mr. Sharpe will consider seriously in the preparation of future volumes. The golden rule of priority and the canons of the Stricklandian Code of Nomenclature are now generally accepted by all zoologists. But like many other things that are excellent, "priority" may be pushed to a ridiculous extent, and some writers seem determined to disgust people with it if they can. The chief object of the rule of priority is the attainment of a uniform nomenclature. Unless, therefore, there is a stringent necessity in obedience to its rule to alter a generally-recognised name, it is only defeating the object in view to propose such a change. But we regret to observe that Mr. Sharpe not unfrequently strains the laws of priority in order to alter well-known and universally adopted titles, both of genera and species. For example, Linnæus called the well-known kestrel *Falco tinnunculus*, *i.e.*, the "Bell Falcon." In 1807 the French naturalist, Vieillot, made the group of kestrels into a genus, for which he proposed to use the name *Tinnunculus*—and this practice has been generally followed by all ornithologists who have considered the group of kestrels as worthy of generic rank. But Mr. Sharpe now wishes to reject the generic name *Tinnunculus* in favour of a subsequently-given appellation, upon the ground, we suppose, that the species first given in Vieillot's list of *Tinnunculi* is not a true kestrel. This may be the case, but it cannot be doubted that when Vieillot founded his genus, *Tinnunculus*, the species most in his eye was the *Falco tinnunculus*, and that that species should be taken as the true type of his genus.[1] Again, a well-known South American bird of prey is universally known as *Spizaëtes ornatus*. Mr. Sharpe would have it termed *Spizaetus mauduyti*, solely because, although both the names were published in the same work at the same date, the latter is given four pages before the former. We cannot believe that even the great authority of the British Museum will induce naturalists to recognise such grounds for the displacement of familiar names.

These, however, are but minor defects in a work that is generally well arranged and well executed. Further than this, we have only to remark that Mr. Sharpe might have done better to adopt some one general classification in its entirety rather than to attempt to amalgamate several hardly-to-be-reconciled systems into one of his own. But whatever his classification may result in, there can be no question of the influence the "Catalogue of Birds" will have on the progress of ornithological science, and we heartily wish the author health and strength to terminate his labours at an earlier period than that which we have assigned to them.

THE ALPS

Die Naturkräfte in der Alpen, oder physikalische Geographie des Alpengebirges, von Dr. Friedrich Pfaff, O. Professor in der Universität, Erlangen. (München: Oldenbourg, 1877.)

THIS is a thoroughly unsatisfactory book. The title is attractive, and in spite of all that has been written about the Alps of late years, a treatise such as is here promised is very much wanted. Such a work if taken in hand by a master of physical science capable of grasping together the varied phenomena and exhibiting vividly their mutual bearings and relations, would be of engrossing interest, and could scarcely fail to throw new light upon many obscure questions of science. Failing this, there is room for a work in which the results of recent exploration and scientific observation should be carefully collected, intelligently arranged, and clearly set forth. Such a book might not attract many of those who have no personal experience of the Alps, but would be welcomed by thousands who have keen recollections of enjoyment among the great mountains, and would fain learn something of the nature and laws of the giant forces within whose sphere they have moved. Along with the primary, though no way common, qualifications of accuracy and clearness, the writer of such a work should have such a firm hold of physical principles as should enable him to mark distinctly the limits of the territory conquered by modern science, and distinguish the conclusions which are definitely established from those that are more or less imperfectly proved, or merely to be ranked as conjectural explanations.

In none of these respects does Prof. Pfaff show himself competent for the work he has undertaken. Except in regard to glacier controversies, where his reading is a little more extended, he appears very ill acquainted with what has been written about the Alps in England, Italy, and France during the last quarter of a century; he is strangely inaccurate, especially as to names and numbers, and often sadly deficient in clearness; and finally, there is a complete want of definiteness in his statements as to the more interesting of the disputed questions discussed in his work.

A disproportionate share, more than a third of the volume, is taken up with what may be called the statistics of the Alps—their division into groups, numerical statements as to the heights of peaks, the dimensions of valleys and lakes, the volume of mountain ridges, and various other orographic elements, some of which do not admit of accurate numerical statement, and others are of trivial

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[1] Mr. Sharpe gives, as the name to be adopted for the Common Kestrel, *Circhneis tinnuncula*—apparently under the idea that *Tinnunculus* is an adjective.

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importance. It is not too much to say that when the author is unable to copy from a clear-headed and accurate writer, such as von Sonklar, this part of his work is frequently a mere muddle.

In attempting to subdivide the Alps into separate groups it is possible to apply one or other of two guiding principles. You may look either to the configuration of the surface and make the deep valleys and low passes that occur here and there throughout the chain the boundaries between the different groups, or you may attend mainly to geological structure, and form groups in each of which a central mass of crystalline rock is surrounded by a girdle of sedimentary strata, but in so doing must often disregard the actual features of the country. M. Pfaff has alternately adopted the geological grouping of Studer and the orographic arrangement of von Sonklar, with the natural result that the same mountains and valleys are in some cases included in two different groups while others are left utterly unprovided for, there being no one group in which they can be placed. For some groups the author has attempted to assign limits and specify the higher summits, but considering the ill success of these attempts, he has, perhaps wisely, refrained in other cases, and for eleven groups he has given names without attempting to define their limits. Among the dominant peaks we find the two ancient impostors Mont Ollan and Mont Iséran, whose existence has long since been disproved by the active members of our Alpine Club, and, stranger still, we are told to look for the latter in an utterly new direction—in the range west of the Col de Bonhomme "between the Isère and the Rhone"—where the discovery of a mountain over 13,000 feet high would undoubtedly make a lively sensation among the natives. A list of the most important peaks in the Alps is given, in which are enumerated fourteen summits in the mass of Mont Blanc, and twelve of those of Monte Rosa, while the crowning peaks of other important groups such as the Grand Paradis and Piz Bernina, each well above 13,000 feet, are altogether omitted. Heights copied at random from various authorities are hopelessly irreconcilable. In one page the Gross Glockner is 495 English feet higher than the Ortler Spitz; a few pages later the tables are turned, and the Ortler surpasses his rival by 285 feet. What with errors in the spelling of names, confusion of standards—Paris feet being quoted in one line, Vienna feet in the next, and in the third some other foot differing from both—and arithmetical blunders or misprints, this portion of the book is simply bewildering.

Under the head of meteorology the author discusses at much length the laws connecting the decrease of temperature of the air with increasing elevation above the earth's surface. He gives the now-antiquated formula of S. von Waltershausen as in accordance with observation, and then professes to give the results of what, with characteristic accuracy, he describes as the "observations of Glaisher and Coxwell, who, on September 5 1862, in London, rose to the astonishing height of 26,800 feet" (28,565 English feet). The reader who may turn to the report of Messrs. Glaisher and Coxwell's famous ascent from Wolverhampton will fail to find anything in the least resembling the results here given, these being in truth very incorrectly calculated from the average results of all the ascents made in 1862. No reference is made to the bearing of these or other recent investigations on a matter so interesting to Alpine travellers as the measurement of heights by means of the barometer, nor does Prof. Pfaff seem to be acquainted with the various memoirs by Count St. Robert, of Turin, wherein the whole subject is discussed in a masterly manner.

Fully one-third of the volume is devoted to the glaciers wherever it would appear that the writer has made observations on his own account. In this branch of his subject he is moderately well informed, and no doubt has done his best to steer cautiously through the rocks and shoals of personal controversy with which the history of this department of scientific inquiry is unfortunately surrounded, while at the same time he fails to mark accurately the positive contributions of each inquirer to the present sum of our knowledge.

He gravely discusses the dilatation theory of glacier motion, and comes to the conclusion that "dilatation cannot be considered the only cause of the progressive motion of glaciers," and soon after remarks that the gravitation theory has now a majority of adherents; while it would be difficult to name a single competent authority who during the last twenty years has admitted that dilatation has any share whatever in producing the phenomena. He has doubtless read the writings of Agassiz, and Forbes, and Tyndall, but he shows himself unable to grasp the full force of the reasoning of the two latter writers, and in more than one instance has failed to understand them. With regard to the vexed question of the origin of the veined structure of glacier ice, Prof. Pfaff is especially unsatisfactory. He attributes the first notice of it to M. Guyot, though many previous travellers had like him observed it, but failed to discern, as Forbes first did, its significance and importance; and he further on confounds the *dirt bands* of Forbes with the superficial appearance of the veined structure. Especially imperfect and indefinite is the version here given of Tyndall's explanation of the origin of this structure; no reader would be likely to appreciate from these pages either the cogency of the arguments in favour of that explanation, or the difficulties which yet remain to be completely removed.

To those who are used to look for accurate knowledge and scrupulous care in German scientific works, it is disappointing to find that volumes designed for popular instruction in that country should be so deficient in all the requisites for imparting knowledge to unscientific readers, as this and some others which have lately appeared.

OUR BOOK SHELF

Kryptogamien Flora von Schlesien. Erster Band. (Breslau: J. U. Kern's Verlag, 1876.)

THIS flora is dedicated to the president of the "Schlesischen Gesellschaft für vaterländische Cultur," Prof. Goeppert, on the fiftieth anniversary of his receiving his doctor's degree. The whole has been ably edited by Dr. Ferdinand Cohn. It is proposed to continue the flora in two more volumes, one devoted to the Algæ and Lichens, and the third to the Fungi, but two years more must elapse before the completion of the entire work. The first volume includes two parts, the first containing the Vascular Cryptogams and Mosses, the second

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